01 Jan 2016

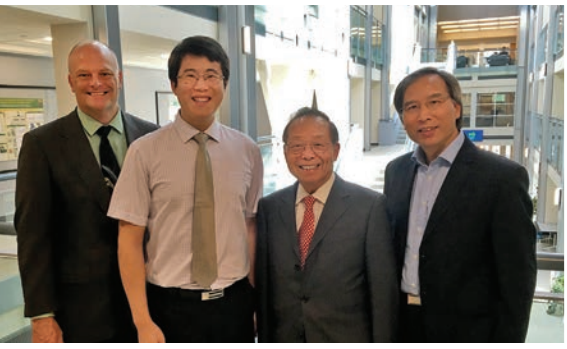
2016 Scholarly Productivity Report

Missouri University of Science and Technology

2016 Scholarly Productivity Report

Civil, Architectural and Environmental Engineering

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For the civil, architectural and environmental engineering faculty and students, 2016 was another productive year. Research activity remained high and the future looks bright given our recent success and an increased submission of grants and contracts. Numerous department faculty are actively hosting two National Department of Transportation Tier 1 University Transportation Centers, with different focus and collaborative teams. The diversity of these two programs brings millions in federally funded research to Rolla and also leverages support of the Missouri DOT and other research partners. This research is also directly related to advancing our infrastructure and transportation systems — topics of great need and interest. The initial announcement of the recent UTC titled "INSPIRE" was noted in the Winter 2016 *Bridge*, as well as in the spring electronic update. Many other active and new grants are listed on page 26 to give a better view of the diversity in our active scholarly activities.

Our team's excellence is clearly documented by the numerous awards that were bestowed upon our faculty and students in 2016 . The breadth and range of these awards are listed on page 30 and demonstrate campus, national and international recognition. I'd like to draw specific attention to **Dr. Kamal Khayat** for being among the world's most cited researchers in the civil engineering discipline, according to the 2016 Academic Ranking of World Universities, to **Dr. Daniel Oerther** for receiving the Superior Achievement Award for Excellence from the American Association of Environmental Engineering and Science, to **Dr. Mohamed ElGawady** on being elected a member of the Board of Directors of The Masonry Society and to **Dr. John Myers** for receiving one of Missouri S&T's Faculty Excellence Awards. I'd like to point out that this is John's ninth Faculty Excellence Award — a very impressive record that shows his continued excellence in research, teaching and service at Missouri S&T.

I'll close with a big "THANK YOU" for your interest and for following our department as we continue our efforts to make a difference and a positive change in the world. We look forward to further success in 2017 and beyond — adding a number of new, talented team members and looking to enhance our research facilities for our current team and for future generations.

You may follow our progress on our Facebook page (MissouriSandTCArE) and peruse our latest news as a campus at news.mst.edu.

Sincerely,
Dr. Joel Burken
Ph.D., P.E., BCEE, F.AEESP

DEPARTMENT FACTS AND STATS

18 Number of professional society Fellow titles held by faculty in the department

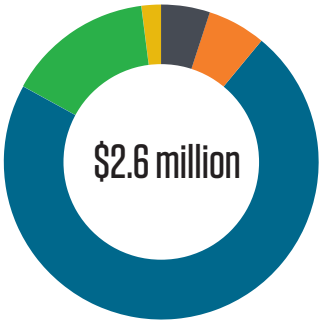
5 Number of endowed professorships in the department

16 Number of professors who hold professional licensure in the department

DEGREES AWARDED IN 2016

	PhD/DE	MS	BS
ArchE	N/A	N/A	35
CE	5	28	94
EnvE	N/A	19	13

Research Funding



CY16 Totals

	Funding
Associations, etc.	$115,100
Industry	$165,200
Federal	$1,889,000
State	$398,300
Other universities	$40,200

► Daniel Abbott
Lecturer, Mechanics
Education: M.S. Mechanical Engineering, Missouri S&T
Courses Taught: Engineering Mechanics: Statics, Materials Testing, Introduction to Engineering Design

► Stuart Baur, Ph.D., A.I.A.
Assistant Chair, Architectural Engineering
Associate Professor, Architectural Engineering
Education: Ph.D. Civil Engineering, Missouri S&T
Research Interests: Design cost effective clean alternative energy, Develop new building technologies and practices through the use of materials and methodology, Generate intelligent responsive building systems

► Jerry Bayless, P.E., F.ASCE
Associate Professor, Structural Engineering
Education: M.S. Civil Engineering, Missouri S&T
Courses Taught: Structural Analysis, Reinforced Concrete Design, Elementary Fluid Mechanics

► Joel Burken, Ph.D., P.E., BCEE, F.AEESP
Department Chair and Curators' Professor,
Civil, Architectural and Environmental Engineering
Education: Ph.D. Civil and Environmental Engineering, University of Iowa
Research Interests: Phytoforensics, Phytoremediation and natural treatment systems, Biological wastewater treatment, Constructed wetlands, Green remediation

► Genda Chen, Ph.D., P.E., F.ASCE
Robert W. Abbett Distinguished Professor, Civil Engineering
Education: Ph.D. Civil Engineering, State University of New York at Buffalo
Research Interests: Structural health monitoring, Interface mechanics and deterioration of composite structures, Adaptive passive dampers and systems, Multi-hazards assessment and mitigation, Forensic study, Seismic analysis and retrofit, Soil-structure interaction, Bridge engineering

► Wen Deng, Ph.D.
Assistant Professor, Geotechnical Engineering
Education: Ph.D. Geosciences, Iowa State University
Research Interests: Multiphase flow, Chemical and thermal transport, Microbial growth in porous and fractured media, Areas of geo-energy recovery, Waste sequestration, Environmental remediation

► Mohamed ElGawady, Ph.D.

Associate Professor and Benavides Faculty Scholar, Structural Engineering

Education: Ph.D., Structural Engineering, EPFL, Swiss Federal Institute of Technology, Lausanne, Switzerland

Research Interests: Seismic behavior of unreinforced masonry (URM) structures, Application of Fiber Reinforced Polymers (FRP) in strengthening and repair of masonry/reinforced concrete structures, Seismic behavior of reinforced concrete bridges, Damage-free bridge columns, Segmental construction, Rocking mechanics and the use of sustainable materials in seismic prone regions

► Dimitri Feys, Ph.D.

Assistant Professor, Materials Engineering

Education: Ph.D. Civil Engineering, Ghent University, Ghent, Belgium

Research Interests: Behavior of highly workable concrete in the fresh state, Rheology of complex materials and suspensions, Suspension flow and sedimentation, Fluid mechanics and flow modeling, Concrete made with recycled materials and advanced sustainability

► Mark Fitch, Ph.D.

Assistant Chair, Environmental Engineering
Associate Professor, Environmental Engineering

Education: Ph.D. Chemical Engineering, University of Texas at Austin

Research Interests: Constructed wetlands/Biochemical reactors for metals removal, Biofiltration/Membrane biofiltration, Nutrient uptake in streams

► William Gillis, Ph.D., P.E., PMP, LEED AP, M.ASCE, M.ASHRAE

Assistant Teaching Professor, Civil and Architectural Engineering

Education: Ph.D. Engineering Management, Missouri S&T

Research and Teaching Interests: Building systems and system efficiency, Green building design and construction, Building commissioning, Indoor air quality

► Kamal Khayat, Ph.D., P.E., F.ACI, F.RILEM

Vernon and Maralee Jones Professor, Materials Engineering
Director, Center for Infrastructure Engineering Studies
Director, Center for Transportation Infrastructure and Safety

Education: Ph.D. Civil Engineering, University of California, Berkeley

Research Interests: Design and performance of advanced structural materials, including high-performance concrete with adapted rheology, self-consolidating concrete, Repair and rehabilitation of civil engineering infrastructure, Rheology and workability of cement grout, mortar and concrete, Physico-chemical interaction of chemical admixtures and modern hydraulic binders, Microstructure and properties of cement-based materials, Mechanical properties, visco-elastic properties and structural performance of specialty concrete, Durability and deterioration of cement-based materials in aggressive environments, Use of chemical admixtures, supplementary cementitous materials and fibers in concrete

► Nicolas Ali Libre, Ph.D.

Assistant Teaching Professor, Structural Engineering

Education: Ph.D. Civil Engineering, University of Tehran, Iran
Research and Teaching Interests: Computational mechanics and applied mathematics, Meshfree numerical methods for partial differential equations, Radial Basis Functions collocation method, Ill-conditioned systems of linear equations, Wavelet-based adaptive methods, Advanced cement-based materials for sustainable construction, Durability of cement-based materials in aggressive environments, Rheological and mechanical properties of fiber-reinforced concrete, Non-destructive evaluation of concrete properties

► Hongyan Ma, Ph.D.

Assistant Professor, Materials Engineering

Education: Ph.D. Civil Engineering, Hong Kong University of Science and Technology
Research Interests: Hydration kinetics of (blended) cementitious materials, Microstructural characterization and modeling of cement paste, interfacial transition zone and mortar/concrete, Measuring and multi-scale modeling of transport properties of concrete, Mechanisms and properties of novel construction/rehabilitation materials, Magnesia-phosphate cement (MPC) and MPC-based functional materials, Deterioration mechanisms of sea sand concrete and marine concrete structures, Molecular simulation of C-S-H, Acoustics-based NDT

► Cesar Mendoza, Ph.D.

Associate Professor, Water Resources Engineering

Education: Ph.D. Civil Engineering, Colorado State University
Research Interests: Hydraulics, Hydrology, Fluid mechanics, Sediment transport, Stream mechanics, Environmental hydraulics, Mathematical modeling

► Glenn Morrison, Ph.D., P.E., F.ISIAQ

Professor, Environmental Engineering

Education: Ph.D. Civil Engineering, University of California, Berkeley
Research Interests: Indoor air pollution, Indoor surface chemistry, Pollutant transport, Exposure analysis, Building science

► John Myers, Ph.D., P.E., F.ACI, F.ASCE, F.TMS

Professor, Structural Engineering
Associate Dean, College of Engineering and Computing
Director, Structural Engineering High-Bay Laboratory

Education: Ph.D. Civil Engineering, University of Texas at Austin
Research Interests: Structures/high performance concrete (HPC) behavior and durability performance, Fiber-reinforced polymers (FRP) in structural repair and strengthening applications with an emphasis related to concrete and masonry structures, and their durability performance, Development of environmentally sensitive construction materials, Hybrid materials and enhanced systems for blast resistant structures

► Daniel Oerther, Ph.D., P.E., BCEE, CEng, F.AAN

Professor, Environmental Engineering

Education: Ph.D. Environmental Engineering, University of Illinois

Research Interests: Environmental biotechnology and sustainable development with a special emphasis on water, sanitation and hygiene (WaSH); food safety, security and nutrition; and poverty alleviation using design thinking and social entrepreneurship

► Timothy Philpot, Ph.D., P.E.

Associate Professor, Structural Engineering

Education: Ph.D. Civil Engineering, Purdue University

Research Interests: Development of interactive educational software for the introductory engineering mechanics courses

► William Schonberg, Ph.D., P.E., F.ASCE, F.ASME, Assoc F.AIAA

Professor, Civil, Architectural and Environmental Engineering

Education: Ph.D. Civil Engineering, Northwestern University

Research Interests: Armor/anti-armor and penetration mechanics, Spacecraft vulnerability/survivability, Spacecraft shielding against meteoroid and orbital debris impacts, Hypervelocity impact phenomena, Building collapse/ rubble modeling

► Eric Showalter, Ph.D., P.E.

Assistant Chair, Civil Engineering

Associate Teaching Professor, Construction Engineering

Education: Ph.D. Civil Engineering, Purdue University

Research and Teaching Interests: Information technology applications in construction, Environmental remediation, Productivity simulation, Cost effectiveness of technology

► Lesley Sneed, Ph.D., P.E., F.ACI

Associate Professor and Stirrat Faculty Scholar, Structural Engineering

Education: Ph.D. Civil Engineering, Purdue University

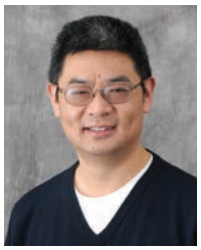
Research Interests: Reinforced and prestressed concrete structural members and systems, Structural models and experimental methods, Innovative methods of repair and strengthening of structures subjected to seismic loading or other extreme hazards, Structural hazard mitigation, Design codes and construction specifications for structural concrete

► Jeffery Thomas, Ph.D., P.E.

Associate Teaching Professor, Structural Engineering

Education: Ph.D. Engineering Mechanics, Missouri S&T

Research and Teaching Interests: Engineering education, Mechanics of biological materials, Design of percussion instruments, Residential construction



► Jianmin Wang, Ph.D., P.E.

Associate Professor, Environmental Engineering

Education: Ph.D. Civil Engineering, University of Delaware

Research Interests: Sustainable technologies for advanced wastewater treatment, Synergistic toxic effect of nanoparticles and heavy metals, Fate and transport of heavy metals in natural and engineered systems

► Chenglin Wu, Ph.D.

Assistant Professor, Structural Engineering

Education: Ph.D. Engineering Mechanics, The University of Texas at Austin
Ph.D. Civil Engineering, Missouri S&T

Research Interests: Multi-scale experimental mechanics and numerical modeling, Mechanics of adhesion and friction, Interfacial fracture mechanics, Composite materials, Microelectronic packaging, Nano indentation of thin films and micro-pillars, Seismic modeling in elastic/poroelastic media, Waveform inversion/ optimization method, Vison-based structural health monitoring method

► Grace Yan, Ph.D.

Assistant Professor, Structural Engineering

Education: Ph.D. Engineering Mechanics, Harbin Institute of Technology, China

Research Interests: Resilient infrastructural systems in multi-hazard environments, Structural health monitoring, Structural damage detection, Wireless sensor networks, Advanced signal processing, Nonlinear system identification and damage detection, Model updating of structural FEMs, Structural vibration control, Smart materials and structures

► Xiong Zhang, Ph.D., P.E.

Associate Professor, Geotechnical Engineering

Education: Ph.D. Civil Engineering, Texas A&M University

Research Interests: Advanced testing techniques for geo-material characterization, Modeling of coupled hydro-chemo-thermo-mechanical behavior of geo-materials, Numerical methods and modeling, Geothermal and ground source heat pump systems, Soil structure interaction, Foundation on expansive and collapsible soils, Slope stability and retaining walls, Soil stabilization and ground improvement, Geotechnical applications in pavement engineering, Frozen ground engineering, Remote sensing for geo-engineering applications

EMERITUS FACULTY

Roger LaBoube
Curators' Teaching Professor Emeritus

David Richardson
Chancellor's Professor
Materials Engineering

Richard Stephenson
Chancellor's Professor
Geotechnical Engineering

JOURNALS

Baur, S.W.

Stanley, R.J., and **Baur, S.W.**, "Assessing the Impact of Project Lead The Way High School Pre-engineering Curriculum on Missouri University of Science and Technology Student Academic Experience and Career Choices," *Transactions on Techniques for STEM Education*, Vol. 1, No. 2, pp. 101-112, 2016.

Burken, J.G.

Limmer, M.A., and **Burken, J.G.**, "Phytovolatilization of Organic Contaminants," *Environmental Science and Technology*, Vol. 50, No. 13, pp. 6632–6643, DOI: 10.1021/acs.est.5b04113, 2016.

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Chen, G.

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Wang, Z., Xing, J.F., **Chen, G.**, and Ren, W., "Differential Settlement Effect on Reliability of Bridge Superstructure and Implementation in Load and Resistance Factor Design Specification," *Advances in Structural Engineering*, DOI: 10.1177/1369433216643898, 2016.

Yan, G., and **Chen, G.**, "Static and Dynamic Behavior of Concrete Slabs Reinforced with Chemically Reactive Enamel-coated Steel Bars and Fibers," *Journal of Zhejiang University - Science A*, Vol. 17, No. 5, pp. 366-377, DOI: 10.1631/jzus.A1500301, 2016.

Chen, Y., Tang, F., Bao, Y., Tang, Y., and **Chen, G.**, "A Fe-C Coated Long Period Fiber Grating Sensor for Corrosion Induced Mass Loss Measurement," *Optics Letter*, Vol. 41, No. 10, pp. 2306-2309, 2016.

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Fakharifar, M., **Chen, G.**, Wu, C., Dalvand, A., and ElGawady, M.A., "Rapid Repair of Earthquake Damaged RC Columns with Prestressed Steel Jackets," *American Society of Civil Engineers Journal of Bridge Engineering*, Vol. 21, No. 4, DOI: 10.1061/(ASCE)BE.1943-5592.0000840, 2016.

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Anumolu, S., Abdelkarim, O., and **ElGawady, M.A.**, "Behavior of Hollow-core Steel-concrete-steel Columns Subjected to Torsion Loading," *American Society of Civil Engineering Journal of Bridge Engineering*, Vol. 21, No. 10, pp. 04016070-1:14, 2016.

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Ichikawa, S., Matsuzaki, H., Moustafa, A., **ElGawady, M.A.**, and Kawashima, K., "Seismic-resistant Bridge Columns with Ultra-high Performance Concrete Segments," *American Society of Civil Engineering Journal of Bridge Engineering*, Vol. 21, No. 9, pp. 04016049-1:16, 2016.

Abdelkarim, O., and **ElGawady, M.A.**, "Design of Short Reinforced Concrete Bridge Columns under Vehicle Collision," *Journal of the Transportation Research Record*, pp. 27-37, 2016.

Moustafa, A., and **ElGawady, M.A.**, "Strain Rate Effect on Properties of Rubberized Concrete Confined with Glass Fiber-reinforced Polymers," *American Society of Civil Engineering Journal of Composites for Construction*, Vol. 20, No. 5, pp. 04016014-1:13, 2016.

Tuwair, H., Volz, J.S., **ElGawady, M.A.**, Chandrashekhara, K., and Birman, V., "Modeling and Analysis of GFRP Bridge Deck Panels Filled with Polyurethane Foam," *American Society of Civil Engineering Journal of Bridge Engineering*, Vol. 21, No. 5, pp. 04016012-1:14, 2016.

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Hassanli, R., **ElGawady, M.A.**, and Mills, J.E., "Force-displacement Behavior of Unbonded Post-tensioned Concrete Walls," *Engineering Structures*, Vol. 106, pp. 495-505, 2016.

Fakhrifar, M., Chen, G., Wu, C., Shamsabadi, A., **ElGawady, M.A.**, and Dalvand, A., "Rapid Repair of Earthquake-damaged RC Columns with Prestressed Steel Jackets," *American Society of Civil Engineering Journal of Bridge Engineering*, Vol. 21, No. 4, pp. 04015075-1:15, 2016.

Tuwair, H., Volz, J.S., **ElGawady, M.A.**, Mohaned, M., Chandrashekhara, K., and Birman, V., "Testing and Evaluation of Polyurethane-based GFRP Sandwich Bridge Deck Panels with Polyurethane Foam Core," *American Society of Civil Engineering Journal of Bridge Engineering*, Vol. 21, No. 1, pp. 04015033-1:13, 2016.

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Feys, D.

Ghafari, E., **Feys, D.**, and Khayat, K.H., "Feasibility of Using Natural SCMs in Concrete for Infrastructure Applications," *Construction and Building Materials Journal*, Vol. 127, pp. 724-732, 2016.

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Feys, D., Khayat, K.H., and Khatib, R., "How do Concrete Rheology, Tribology, Flow Rate and Pipe Radius Influence Pumping Pressure?" *Cement and Concrete Composites*, Vol. 66, pp. 38-46, 2016.

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De Schutter, G., and **Feys, D.**, "Pumping of Fresh Concrete: Insights and Challenges," *RILEM Technical Letters*, Vol. 1, pp. 76-80, 2016.

Gillis, W.

Cudney, E., and **Gillis, W.**, "Quality Function Deployment Implementation in Construction: A Systematic Literature Review," *Frontiers of Engineering Management*, Vol. 3, No. 3, pp. 224-230, 2016.

Khayat, K.H.

Meng, W., and **Khayat, K.H.**, "Mechanical Properties of Ultra-high Performance Concrete Enhanced with Graphite Nanoplatelets and Carbon Nanofibers," *Composites Part B: Engineering*, Vol. 107, No. 15, pp. 113-122, 2016.

Foudazi, A., Mehdipour, I., Donnell, K.M., and **Khayat, K.H.**, "Evaluation of Steel Fiber Distribution in Cement-based Materials Using Active Microwave Thermography," *Materials and Structures*, Vol. 49, No. 12, pp. 5051-5065, 2016.

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Sadati, H., and **Khayat, K.H.**, "Field Performance of Concrete Pavement Incorporating Recycled Concrete Aggregate," *Construction and Building Materials Journal*, Vol. 126, pp. 691-700, 2016.

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Mehdipour, I., and **Khayat, K.H.**, "Effect of Supplementary Cementitious Material Content and Binder Dispersion on Packing Density and Compressive Strength of Sustainable Cement Paste," *American Concrete Institute Materials Journal*, Vol. 113, No. 3, pp. 361-372, 2016.

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Meng, W., and **Khayat, K.H.**, "Experimental and Numerical Studies on Flexural Behavior of Ultra-high Performance Concrete Panels Reinforced with Embedded Glass Fiber-reinforced Polymer Grids," *Transportation Research Board Record*, No. 2592 - Structures, pp. 38-44, 2016.

Aïssoun, B., Hwang, S.D., and **Khayat, K.H.**, "Influence of Aggregate Characteristics on Workability of Superworkable Concrete," *Materials and Structures*, Vol. 49, No. 2, pp. 597-609, 2016.

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Myers, J.J., "Ability to Resist Different Weathering Actions of Eco-friendly Wood Fiber Masonry Blocks," 16th International Brick and Block Masonry Conference (IBMAC 2016), Padova, Italy, June, 2016.

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Richardson, D.N.

Richardson, D.N., "Introduction to the New pavement Construction Guide: ACI 325.9R-15," Missouri Concrete Conference, Missouri University of Science and Technology, Rolla, MO, May, 2016.

Schonberg, W.P.

Schonberg, W.P., and Myers, L., "Technology as Art and Art as Technology – Educating Audiences through Artistic Endeavor," Proceedings of the Annual General Meeting of the Caribbean Association of Museums, Grand Cayman, BWI, October, 2016.

Dr. William Schonberg

General Meeting of the Caribbean Association of Museums, Grand Cayman Island

Schonberg presented a talk on the interaction of art and engineering entitled, "Technology as Art and Art as Technology – Educating Audiences through Artistic Endeavor."

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Sneed, L.H.

Elkrry, A., Torgashov, E., Nwokebuihe, S., Dera, A., Alotaibi, A., **Sneed, L.H.**, and Anderson, N., "Non-invasive Imaging and Assessment of Pavements," 29th Annual Symposium on the Application of Geophysics for Engineering and Environmental Problems (SAGEEP), The Environmental and Engineering Geophysical Society, Denver, CO, CDROM, March, 2016.

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Wu, C.

Wu, C., Gowrishankar, S., Huang, R., and Liechti, K.M., "Determining Mixed-mode Traction-separation Relation for Si/Epoxy Interfaces," 39th Annual Meeting of Adhesion Society, San Antonio, TX, March, 2016.

Wu, C., Gowrishankar, S., Huang, R., and Liechti, K.M., "Extraction of Mixed-mode Traction-separation Relation for Interfaces," International Mechanical Engineering Congress and Exposition, Houston, TX, November, 2016.

Yan, G.

Zhao, Y., **Yan. G.**, and Isaac, K.M., "Characteristics of Wind Flow Around Dome Structures in Tornadic Wind Field," The 4th American Association for Wind Engineering Workshop, Miami, FL, August, 2016.

Yan, G., Yu, J., Zhao, Y., and Xiao,Y., "Locate Damage Based on Change in Structural Shape Calculated From Uniform Load Surface," American Society of Mechanical Engineers 2016 Conference on Smart Materials, Adaptive Structures and Intelligent Systems, Stowe, VT, September, 2016.

Dr. Lesley Sneed
8th International Conference on Fibre-reinforced Polymer (FRP) Composites in Civil Engineering, Hong Kong, China

Zhao, Y., **Yan, G.**, Zu, J., Yuan, F., and Isaac, K.M., "Comparison on Wind Effects of Tornadic and Straight-line Wind Fields on Spherical Dome Structures," The 8th International Colloquium on Bluff Body Aerodynamics and Applications, Boston, MA, June, 2016.

Zu, J., **Yan, G.**, and Li, C., "Investigation of Wind Pressure of Translating Tornado on Spherical Dome Structures," The 8th International Colloquium on Bluff Body Aerodynamics and Applications, Boston, MA, June, 2016.

Zhao, Y., **Yan, G.**, and Hua, X., "Investigation of Wind Effects of Tornadoes on Dome Structures," First International Symposium on Flutter and its Application, Tokyo, Japan, May, 2016.

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Yan, G., Yu, J., Zhao, Y., and Feng, R., "Locate Damage Based on Change in Structural Shape for Civil Space Structures," Proceedings of the International Society for Optics and Photonics 9803, Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems, 98034X, DOI: 10.1117/12.2219430, May, 2016.

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INVITED LECTURES

Burken, J.G.

Burken, J.G., "Green Infrastructure Valuation: Saving Water Pollutants and Energy," NSF-INFEWS Symposia, University of Kansas, Lawrence, KS, January, 2016.

Chen, G.

Chen, G., "Performance-based Seismic Retrofit Design of Multi-bent Girder Bridges with Damping-enhanced Strengthening," 7th Kwang-Hua Forum on Innovations and Implementation in Earthquake Engineering, Tongji University, Shanghai Shi, China, December, 2016.

Chen, G., "Smart Rocks as Field Agents for Bridge Scour Monitoring in Real Time," Presented at the US-China Workshop on Bridge Engineering, Xi'an, China, October, 2016.

Chen, G., "Smart Shear Keys for Earthquake Mitigation of Diaphragm-free Girder Bridges," Presented at the First US-Chile Workshop on Bridge Earthquake Engineering, Reno, NV, August, 2016.

ElGawady, M.A.

ElGawady, M.A., "Innovative Column Design for Extreme Loads," Transportation Engineers Association of Missouri, St. Louis, MO, March, 2016.

Feys, D.

Feys, D., Zacarias, P., Van Zetten, S., Keller, L., Schulz, B., and Riding, K., "Maintaining the Air-void System during Pumping of Self-consolidating Concrete: A Challenging Fluid Mechanics Problem!" Proceedings of the 8th Int. RILEM and the 6th North American Conference on Self-consolidating Concrete, Washington, D.C., May, 2016.

Khayat, K.H.

Khayat, K.H., "Novel Applications of UHPC for Civil Infrastructure," 1st International Concrescence on Ultra-high Performance Concrete (UHPC 2016), Changsha, China, November, 2016.

Wu, Z., Shi, C., and **Khayat, K.H.**, "Optimization of Microstructure and Pullout Behavior of Fibers in Ultra-high Strength Concrete Using Nano-particles and Heat Curing," 1st International Concrescence on Ultra-high Performance Concrete (UHPC 2016), Changsha, China, November, 2016.

Khayat, K.H., "To What Degree Does Slump Affect the Performance of Underwater Concrete?" American Concrete Institute (ACI) Fall 2016 Convention, Philadelphia, PA, October, 2016.

Khayat, K.H., "Design and Performance of Sustainable Concrete Made with High Volume of Recycled Materials for Infrastructure Construction," International Symposium of Ceramics and Composites (ISCCO 2016), Medellin, Colombia, October, 2016.

Khayat, K.H., "High-performance Concrete with Adapted Rheology," International Conference on Materials, Systems and Structures in Civil Engineering, Lyngby, Denmark, August, 2016.

Khayat, K.H., "High-performance Concrete with Adapted Rheology – Recent Advances and Future Challenges," Gordon Research Conference on Advanced Materials for Sustainable Infrastructure Development, Hong Kong University of Science and Technology, Hong Kong, China, August, 2016.

Meng, W., and **Khayat, K.H.**, "Development of Stay-on-place Formwork Using GFRP Reinforced UHPC Elements," UHPC 2016 Interactive Symposium, Iowa State University, Ames, IA, July, 2016.

Khayat, K.H., "Performance of Fiber-reinforced SCC in Concrete Infrastructure Rehabilitation," 8th RILEM Symposium on SCC and the 6th North American Conference on Design and Use of SCC 2016, Washington, D.C., May, 2016.

Dr. Genda Chen

Series of field validation tests of smart rocks for scour monitoring at Waddell Creek Bridge site, California

Dr. Kamal Khayat, Conference Chair

SCC 2016 International Concrete Sustainability Conference
Washington, D.C.
Exchanging the latest ideas, knowledge and tools to build the future of concrete construction as it relates to design, construction and manufacturing of self-consolidating concrete (SCC)

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Keller, L., Gardner, J., Van Zetten, S., Zacarias, P., **Khayat, K.H.**, Lange, D., and Omran, A., "SCC Under Pressure — Field Validation of Models for Predicting Lateral Form Pressure in Toronto," 8th RILEM Symposium on SCC and the 6th North American Conference on Design and Use of SCC 2016, Washington, D.C., May, 2016.

Esmaeilkhanian, B., Diederich, P., **Khayat, K.H.**, Yahia, A., and Wallevik, O.H., "Effect of Particle-size Distribution and Lattice Effect on Stability of Self-consolidating Concrete," 8th RILEM Symposium on SCC and the 6th North American Conference on Design and Use of SCC 2016, Washington, D.C., May, 2016.

Mueller, F.V, Wallevik, O.H., and **Khayat, K.H.**, "Robustness of Low-binder SCC (Eco-SCC), Lean SCC, and Binder-rich SCC," 8th RILEM Symposium on SCC and the 6th North American Conference on Design and Use of SCC 2016, Washington, D.C., May, 2016.

Mueller, F.V, Wallevik, O.H., and **Khayat, K.H.**, "A New Homogeneity Assessment Concept Applied to Evaluate Self-consolidation and Segregation Stability of Self-compacting Concrete," 8th RILEM Symposium on SCC and the 6th North American Conference on Design and Use of SCC 2016, Washington, D.C., May, 2016.

Abdelrazik, A., **Khayat, K.H.**, and Hwang, S.D., "Effect of Types of Fibers and Expansive Agents on Flexural Performance of Self-consolidating Concrete," 8th RILEM Symposium on SCC and the 6th North American Conference on Design and Use of SCC 2016, Washington, D.C., May, 2016.

Mehdipour, I., and **Khayat, K.H.**, "Shrinkage Mitigating Strategies for Low Shrinkage Self-consolidating Concrete," 8th RILEM Symposium on SCC and the 6th North American Conference on Design and Use of SCC 2016, Washington, D.C., May, 2016.

Hwang, S.D., Lepesqueux, E., and **Khayat, K.H.**, "Performance Comparison of SCC Made with Lightweight Aggregates, Shrinkage-reducing Admixture, and Expansive Agent," 8th RILEM Symposium on SCC and the 6th North American Conference on Design and Use of SCC 2016, Washington, D.C., May, 2016.

Kada, H., **Khayat, K.H.**, Djelal, C., and Vanhove, Y., "Heat Flux Measurements for the Characterization of Maturity and Stability of Mortars and Self-consolidating Concrete," 8th RILEM Symposium on SCC and the 6th North American Conference on Design and Use of SCC 2016, Washington, D.C., May, 2016.

Hosseinpoor, M., **Khayat, K.H.**, Yahia, A., and Mesbah, H.A., "Homogeneous Analysis of Self-consolidating Concrete (SCC) Casting in Reinforced Beam Using Computational Fluid Dynamics (CFD)," 8th RILEM Symposium on SCC and the 6th North American Conference on Design and Use of SCC 2016, Washington, D.C., May, 2016.

Hosseinpoor, M., **Khayat, K.H.**, and Yahia, A., "Numerical Simulation of Self-consolidating Concrete Flow as a Heterogeneous Material in L-box Set-up," 8th RILEM Symposium on SCC and the 6th North American Conference on Design and Use of SCC 2016, Washington, D.C., May, 2016.

Omran, A., and **Khayat, K.H.**, "Models to Predict Form Pressure Exerted by SCC — Results of Six Field Campaigns," 8th RILEM Symposium on SCC and the 6th North American Conference on Design and Use of SCC 2016, Washington, D.C., May, 2016.

Abdelrazik, A., and **Khayat, K.H.**, "Effect of Type of Fibers and Fiber Volume on Flexural Performance of Super-workable Concrete," 8th RILEM Symposium on SCC and the 6th North American Conference on Design and Use of SCC 2016, Washington, D.C., May, 2016.

Sadati, H., and **Khayat, K.H.**, "Statistical Mixture Design to Optimize Eco-efficient Binder for Infrastructure Construction," 11th Annual International Concrete Sustainability Conference, Washington, D.C., May, 2016.

Sadati, H., and **Khayat, K.H.**, "Structural Health Monitoring in Rigid Pavements, a Case Study," 25th ASNT Research Symposium, New Orleans, LA, April, 2016.

Mehdipour, I., Zoughi, R., and **Khayat, K.H.**, "Monitoring of Self-healing Capability in Cement-based Mortar Using Near-field Microwave Reflectometry — Preliminary Results," 25th American Society for Nondestructive Testing (ASNT) Spring Research Symposium, New Orleans, LA, April, 2016.

Khayat, K.H., and Omran, A., "Assessment of Thixotropy and Effect Mixture Composition on Thixotropy/Form Pressure of SCC," American Concrete Institute Spring 2016 Convention, Milwaukee, WI, April, 2016.

Sotomayor, C.D., **Khayat, K.H.**, and Yahia, A., "Performance of Super-workable Concrete Mix Designs with Adapted Rheology for Infrastructures," American Concrete Institute Spring 2016 Convention, Milwaukee, April, 2016.

Mehdipour, I., and **Khayat, K.H.**, "Development of Eco-friendly Superworkable Concrete Using Particle Mix Design Methodology of Super-workable Concrete Mix Designs with Adapted Rheology for Infrastructures," American Concrete Institute Spring 2016 Convention, Milwaukee, WI, April, 2016.

Meng, W., and **Khayat, K.H.**, "Effect of Loading Rate and Notch-to-depth Ratio on Flexural Strength and Fracture Energy Dissipation of UHPC Beams under Four-point Test," American Concrete Institute Spring 2016 Convention, Milwaukee, WI, April, 2016.

Meng, W., and **Khayat, K.H.**, "Flexural Performance of Ultra-high Performance Concrete Ballastless Track Slabs," 2016 Joint Rail Conference (JRC2016), Columbia, SC, April, 2016.

Libre, N.A., and **Khayat, K.H.**, "Performance Evaluation of Automated Workability Measurement for Concrete Quality Control," Transportation Research Board Meeting, Washington, D.C., January, 2016.

Meng, W., and **Khayat, K.H.**, "Experimental and Numerical Studies on Flexural Behavior of Ultra-high Performance Concrete Panels Reinforced with Embedded Glass Fiber-reinforced Polymer Grids," Transportation Research Board Meeting, Washington, D.C., January, 2016.

Morrison, G.C.

Morrison, G.C., "Indoor Chemistry and Aerosols," Workshop on the Health Risks of Indoor Exposure to Particulate Matter, Institutes of Medicine, National Academy of Sciences, Washington, D.C., February, 2016.

Myers, J.J.

Myers, J.J., "An Overview of the United States Protocols on Structural Assessment Using Load Testing: ACI 437.1R-07, ACI 437.2-13 and ACI 342R-16," 5th International Symposium on Life-cycle Civil Engineering (IALCCE 2016), Delft, The Netherlands, October, 2016.

Myers, J.J., "Experimental Study on Flexural Behavior of Reinforced Masonry Walls Strengthened with FRCM Composite or NSM with Cementitious Adhesive," American Concrete Institute Fall 2016 Conference, Philadelphia, PA, October, 2016.

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Myers, J.J., "Physical Property and Microstructural Analysis of GFRP Reinforcing Bars Embedded in Concrete," 6th International Conference on Structural Engineering, Mechanics, and Computation (SEMC 2016), Cape Town, South Africa, September, 2016.

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Myers, J.J., "Monitoring the Initial Structural Performance of a Prestressed Self-consolidating Concrete Bridge," 6th North American Conference on Design and Use of Self-consolidating Concrete (SCC 2016) and 8th International RILEM Symposium on Self-consolidating Concrete, Washington, D.C., May, 2016.

Myers, J.J., "Strengthening of Reinforced Masonry Walls using Different Fiber-reinforced Composites: Near-surface Mounted and EB Research," Masonry Institute of St. Louis (MISL), St. Louis, MO, January, 2016.

Oerther, D.B.

Oerther, D.B., "Career Panel for SEEDS (Strategies for Ecology Education, Diversity)," Ecological Society of America and United States Forest Service, Kabekona Hills Retreat Center, Rolla, MO, May, 2016.

Schonberg, W.P.

Schonberg, W.P., "Technological Literacy in a Global Society," TedxUCCI, University College of the Cayman Islands, Grand Cayman, BWI, (https://www.youtube.com/watch?v=ws9KpyQ31mU), March, 2016.

Sneed, L.H.

Sneed, L.H., Carloni, C., D'Antino, T., and Pellegrino, C., "Study of the Interfacial Debonding of PBO-FRCM-Concrete Systems," American Concrete Institute Spring 2016 Convention, Milwaukee, WI, April, 2016.

Sneed, L.H., "FRCM Composites for Structural Strengthening Applications," Politecnico di Milano, Milan, Italy, June, 2016.

Sneed, L.H., Carloni, C., Verre, S., and Ombres, L., "Flexural Behavior of RC Beams Strengthened and Repaired with Steel-FRP Composite Strips," American Concrete Institute Fall 2016 Convention, Philadelphia, PA, October, 2016.

Sneed, L.H., "Interface Shear Transfer of Lightweight Aggregate Concretes," American Concrete Institute Fall 2016 Convention, Philadelphia, PA, October, 2016.

Sneed, L.H., He, R., and Yang, Y., "Post-repair Seismic Assessment of RC Bridges with CFRP-repaired Columns," American Concrete Institute Fall 2016 Convention, Philadelphia, PA, October, 2016.

Sneed, L.H., "FRCM Composites for Structural Strengthening Applications," Hong Kong University of Science and Technology, Hong Kong, December, 2016.

INVITED LECTURES
(CONTINUED)

Wang, J.

Wang, J., "Sustainable Wastewater Treatment through Low DO Aeration," Biological Sciences Department, Missouri University of Science and Technology, Rolla, MO, October, 2016.

Wang, J., "Harnessing Energy and Freshwater from Wastewater: Is It Feasible?" China Petroleum University, Qingdao, China, June, 2016.

Wang, J., "Low DO Sustainable Wastewater Treatment Process," Tongji University, Shanghai, China, June, 2016.

Wu, C.

Wu, C., "Multi-scale Mechanics and Multi-physics of Solids: Experiment, Metrology, and Modeling," Missouri University of Science and Technology, Rolla, MO, April, 2016.

Yan, G.

Yan, G., "Condition Assessment and Hazard Mitigation for Sustainable and Resilient Civil Structures," Tokyo Polytechnic University, Tokyo, Japan, May, 2016.

Yan, G., "Detection of Individual Member Buckling," Southeast University, Nanjing, China, May, 2016.

Yan, G., "Condition Assessment and Hazard Mitigation for Sustainable and Resilient Civil Structures," University of Missouri, Columbia, MO, May 2016.

Yan, G., "Detection of Snap-through Instability of Dome Structures," Nanjing Technology University, Nanjing, China, May, 2016.

Zhang, X.

Zhang, X., "Rapid Characterization of Stress-strain Behavior for Unsaturated Soils," Transportation Research Congress, Beijing, China, June, 2016.

MONOGRAPHS

Chen, G.

Chen, G., Tang, Y., Chen, Y., Li, Z., Guo, C., Fan, L., Bao, Y., Hu, X., and Klegseth, M., Smart Rock Technology for Real-time Monitoring of Bridge Scour and Riprap Effectiveness – Design Guidelines and Visualization Tools, Final Report No. OASRTRS-14-H-MST, Office of the Assistant Secretary for Research and Technology, December, 2016.

Khayat, K.H.

Khayat, K.H., Design, Production and Placement of Self-compacting Concrete, *Proceedings of the 8th International RILEM Symposium on Self-compacting*, RILEM PRO 100, Peer-reviewed Volume, 536 pp., Washington D.C., May, 2016,

Khayat, K.H., Design, Production and Placement of Self-compacting Concrete, *Proceedings of the 8th International RILEM Symposium on Self-consolidating Concrete and 6th North American Conference on the Design and Use of Self-consolidating Concrete*, RILEM Supplementary Volume, 1196 pp., Washington D.C., May 2016.

Myers, J.J.

Smith, J.L., Hindi, R.A., Oglesby, R.K., Dixit, O.P., Foden, A.J., Garner, A.G., Harris, D.K., Mahgoub, M.A., Massicotte, B., **Myers, J.J.**, Olson, L.D., Salama, A.E., Schor, J.C.F., Silfwerbrand, J.L., and Williams, M.E., "Report on Flexural Live Load Distribution Methods for Evaluating Existing Bridges," American Concrete Institute Committee 342, Farmington Hills, MI, Balloted to 440, Published 2016.

TECHNICAL REPORTS

Myers, J.J.

Gooranorimi, O., Bradberry, T., Dauer, E., **Myers, J.J.**, and Nanni, A., Long-term Durability of GFRP Reinforcement in Concrete: A Case Study after 15 Years of Service, Final Project Report, RECAST, Research on Concrete Applications For Sustainability Transportation, Tier 1 University Transportation Center, Rolla, MO, 36 pp., June, 2016.

Myers, J.J., Hernandez, E.S., Alghazali, H., Griffin, A., and Smith, K., Self-consolidating Concrete (SCC) and High Volume Fly Ash Concrete (HVFAC) for Infrastructure Elements: Implementation, Final Summary Report, MoDOT TR201236, Report cmr16-011, Missouri Department of Transportation, Jefferson City, MO, 44 pp., June, 2016.

Myers, J.J., Hernandez, E.S., Alghazali, H., Griffin, A., and Smith, K., Self-consolidating Concrete (SCC) and High Volume Fly Ash Concrete (HVFAC) for Infrastructure Elements: Implementation, Final Report A – Bridge A7957 Fabrication, Construction, and Early-age Properties of HS-SCC, SCC, HVFAC, and Conventional Concrete (CC), MoDOT TR201236, Report cmr16-011A, Missouri Department of Transportation, Jefferson City, MO, 217 pp., June, 2016.

Myers, J.J., Hernandez, E.S., Alghazali, H., Griffin, A., and Smith, K., Self-consolidating Concrete (SCC) and High Volume Fly Ash Concrete (HVFAC) for Infrastructure Elements: Implementation, Final Report B – Shear Behavior of High-strength Self-consolidating Concrete in NU Bridge Girders, MoDOT TR201236, Report cmr16-011B, Missouri Department of Transportation, Jefferson City, MO, 203 pp., June, 2016.

Myers, J.J., Hernandez, E.S., Alghazali, H., Griffin, A., and Smith, K., Self-consolidating Concrete (SCC) and High Volume Fly Ash Concrete (HVFAC) for Infrastructure Elements: Implementation, Final Report C – Implementation of HVFA Concrete from Laboratory Studies into Bridge Application, MoDOT TR201236, Report cmr16-011C, Missouri Department of Transportation, Jefferson City, MO, 160 pp., June, 2016.

Myers, J.J., Hernandez, E.S., Alghazali, H., Griffin, A., and Smith, K., Self-consolidating Concrete (SCC) and High Volume Fly Ash Concrete (HVFAC) for Infrastructure Elements: Implementation, Report D – Load Testing and Monitoring of Bridge A7957 Initial In-service Response, MoDOT TR201236, Report cmr16-011D, Missouri Department of Transportation, Jefferson City, MO, 101 pp., June, 2016.

Sneed, L.H.

Sneed, L.H., Wermager, S., and Krc, K., Interface Shear Transfer of Lightweight Aggregate Concretes with Different Lightweight Aggregates – Final Report," Precast/Prestressed Concrete Institute, Chicago IL, 150 pp., 2016.

Yan, G.

Yan, G., Annual report for NSP project, Damage and Instability Detection of Civil Large-scale Space Structures under Operational and Multi-hazard Environments Based on Change in Macrogeometrical Patterns/Shapes, April, 2016.

CONTRACTS, GRANTS & FELLOWSHIPS

Burken, J.G.

Burken, J.G. (PI), "Environmental Protection Agency Fellowship Agreement," Environmental Protection Agency, September 2015 to August 2017; $50,000.

Burken, J.G. (PI), Fitch, M. (CoPI), Shi, H. (CoPI), Wang, J. (CoPI), and Wronkiewicz, D.J. (CoPI), "Plant Analysis for Revegitation of Lead/Zinc Mine Tailings Using Biosolids and Other Amendments," Doe Run Company, July 2016 to June 2017; $28,000.

Zhang, X. (PI), and **Burken, J.G.** (CoPI), "Research Efforts in Remotesensing Technology Related to Climate Change, Vegetation and Soil Properties," NSF, September 2016 to July 2019; $170,250.

Burken, J.G. (PI), "NIH Support for Conferences and Scientific Meetings," NIH National Institute for Environmental Health, July 2016 to June 2017; $13,500.

Burken, J.G. (PI), and Shi, H. (CoPI), "RDX Phytoforensic Sampling in Tree Tissues," Geological Survey, May 2016 to May 2017; $16,000.

Burken, J.G. (PI), Shi, H. (CoPI), and Limmer, M.A. (CoPI), "Exposure Assessment of Emerging and Fugitive Contaminants: Rapid Screening of Plant Uptake and Translocation," NSF Chemical Bioengineering, October 2016 to September 2017; $332,880.

Burken, J.G. (PI), and Shi, H. (CoPI), "Collaborative Data Assessment and Phytoforensic Analysis for Organic Leachrate Pollutants," US Forest Service, September 2016 to August 2017; $75,212.

Chen, G.

Myers, J.J. (PI), **Chen, G.** (CoPI), ElGawady, M.A. (CoPI), Sneed, L.H. (CoPI), and Yan, G. (CoPI), "Graduate Assistance in Areas of National Need (GAANN)," US Department of Education, September 2016 to August 2017; $246,140.

Chen, G. (PI), and Long, S.K. (CoPI), "Transportation Research Methods Training," Missouri Department of Transportation, March 2016 to April 2017; $99,618.

Chen, G. (PI), "Distributed Optical Fiber Sensor Network for Monitoring and Assessment of Largescale Structures Subjected to Fire," National Institute of Standards and Technology, September 2013 to August 2017, $21,424.

Chen, G. (PI), "Chemically Bonded Porcelain Enamel Coated Pipe for Corrosion Protection and Flow Efficiency," – 4th award, Department of Transportation, September 2016 to September 2018; $3,638.

Chen, G. (PI), ElGawady, M.A. (CoPI), Ma, H. (CoPI), Myers, J.J. (CoPI), Sneed, L.H. (CoPI), Zoughi, R. (CoPI), Long, S.K. (CoPI), Qin, R. (CoPI), and Yin, Z. (CoPI), "Inspecting and Preserving Infrastructure through Robotic Exploration," Department of Transportation, November 2016 to September 2022; $1,402,200.

Deng, W.

Deng, W. (PI), "Pore Scale Seismic for EOR," UM Research Board, June 2016 to May 2017; $38,821.

Deng, W. (PI), "Porescale Study of Seismic Stimulation for Enhanced Oil Recovery," China TOPRS TECH CO LTD, September 2016 to December 2016; $9,000.

ElGawady, M.A.

ElGawady, M.A. (PI), and Schonberg, W.P. (CoPI), "Characterization and Performance of Zerocement Concrete for Longer Service Life of Bridges," Missouri Department of Transportation, October, 2016 to April 2018; $100,000.

Chen, G. (PI), **ElGawady, M.A.** (CoPI), Ma, H. (CoPI), Myers, J.J. (CoPI), Sneed, L.H. (CoPI), Zoughi, R. (CoPI), Long, S.K. (CoPI), Qin, R. (CoPI), and Yin, Z. (CoPI), "Inspecting and Preserving Infrastructure through Robotic Exploration," Department of Transportation, November 2016 to September 2022; $1,402,200.

Myers, J.J. (PI), Chen, G. (CoPI), **ElGawady, M.A.** (CoPI), Sneed, L.H. (CoPI), and Yan, G. (CoPI), "Graduate Assistance in Areas of National Need (GAANN)," US Department of Education, September 2016 to August 2017; $246,140.

Feys, D.

Feys, D. (PI), "RECAST: Application of VFC Mixtures in Rapid Pavement Construction," Department of Transportation, June 2016 to December 2017; $61,040.

Feys, D. (PI), and Khayat, K.H. (CoPI), "Testing Concrete for Deep Foundations," Department of Transportation, August 2016 to May 2016; $25,000.

Fitch, M.

Burken, J.G. (PI), **Fitch, M**. (CoPI), Shi, H. (CoPI), Wang, J. (CoPI), and Wronkiewicz, D.J. (CoPI), "Plant Analysis for Revegitation of Lead/Zinc Mine Tailings Using Biosolids and Other Amendments," Doe Run Company, July 2016 to June 2017; $28,000.

Khayat, K.H.

Khayat, K.H. (PI), "RECAST: Economical and Crackfree High-performance Concrete with Adapted Rheology," Department of Transportation, May 2014 to December 2017; $40,000.

Khayat, K.H. (PI), "RECAST: High-volume Recycled Materials for Sustainable Pavement Construction," Department of Transportation, May 2014 to December 2017; $40,000.

Khayat, K.H. (PI), "RECAST: Performance of Fiber-reinforced Self-consolidating Concrete for Repair of Bridge Sub-structures and Fiber-reinforced Super-workable Concrete for Infrastructure Construction," Department of Transportation, May 2014 to December 2017; $40,000.

Khayat, K.H. (PI), "RECAST/Ultra-high Performance Fiber-reinforced Concrete (UHPFRC) for Infrastructure Rehabilitation," Department of Transportation, June 2014 to December 2017; $40,000.

Khayat, K.H. (PI), "MoDOT: Design of Ultra-high Performance Concrete for Thin Overlays," Missouri Department of Transportation, July 2016 to July 2017; $40,000.

Khayat, K.H. (PI), "RECAST: Use of Internal Curing Materials to Improve Performance of Concrete Infrastructure," Department of Transportation, July 2016 to December 2017; $50,000.

Khayat, K.H. (PI), "MoDOT: Use of Internal Curing Materials to Improve Performance," Missouri Department of Transportation, July 2016 to October 2017; $50,000.

Khayat, K.H. (PI), "MoDOT: Implementation of FR Self-consolidating Concrete for Repair of Bridge Sub-structures and FR Super-workable Concrete for Infrastructure Construction," Missouri Department of Transportation, July 2016 to July 2017; $40,000.

Khayat, K.H. (PI), "MoDOT: Field Implementation and Monitoring of Behavior of Economical and Crackfree High-performance Concrete for Pavement and Transportation Infrastructure Constructions," — Phase II; Missouri Department of Transportation, July 2016 to July 2017; $40,000.

Khayat, K.H. (PI), "MoDOT: Field Implementation of High-volume Recycled Materials for Sustainable Pavement Construction," Missouri Department of Transportation, July 2016 to July 2017; $40,000.

Feys, D. (PI), and **Khayat, K.H.** (CoPI), "Testing Concrete for Deep Foundations," Department of Transportation, August 2016 to May 2016; $25,000.

LaBoube, R.

LaBoube, R. (PI), "WeiWen Yu Center for Coldformed Steel Structures," Metal Building Manufacturers Association, January 2016 to December 2016; $5,000.

LaBoube, R. (PI), "SDI Sponsorship of CCFSS," Steel Deck Institute, January 2016 to December 2016; $5,000.

LaBoube, R. (PI), "RMI Sponsorship of CCFSS," Rack Manufacturers Institute, Inc., January 2016 to December 2016; $5,000.

LaBoube, R. (PI), "AISI Sponsorship of CCFSS," American Iron and Steel Institute, January 2016 to December 2016; $52,500.

LaBoube, R. (PI), "WeiWen Yu Center for Coldformed Steel Structures," Steel Framing Industry Association, January 2016 to December 2016; $5,000.

LaBoube, R. (PI), "WeiWen Yu Center for Coldformed Steel Structures," Metal Construction Association, January 2016 to December 2016; $2,500.

LaBoube, R. (PI), "CFSEI Sponsorship of CCFSS," ColdFormed Steel Engineers Institute, January 2016 to December 2016; $5,000.

Libre, N.A.

Libre, N.A. (PI), "Flipping CE2210: Mechanics of Materials," Missouri S&T Provost's eFellows Program, August 2016 to August 2017, $7,000.

Lusher, S.M.

Lusher, S.M. (PI), "MoDOT-Missouri S&T Creep Compliance and Tensile Strength Testing," Missouri Department of Transportation, December 2016 to September 2017; $80,174.

Ma, H.

Chen, G. (PI), ElGawady, M.A. (CoPI), **Ma, H.** (CoPI), Myers, J.J. (CoPI), Sneed, L.H. (CoPI), Zoughi, R. (CoPI), Long, S.K. (CoPI), Qin, R. (CoPI), and Yin, Z. (CoPI), "Inspecting and Preserving Infrastructure through Robotic Exploration," Department of Transportation, November 2016 to September 2022; $1,402,200.

Morrison, G.C.

Morrison, G.C. (PI), "Sloan Symposium at ISIAQ's Indoor Air 2016," University of Toronto, December 2015 to October 2016; $5,368.

Morrison, G.C. (PI), "Sloan Symposium at ISIAQ's Indoor Air 2016," University of Toronto, December 2015 to October 2016; $14,400.

CONTRACTS, GRANTS & FELLOWSHIPS (CONTINUED)

Morrison, G.C. (PI), "Workshop: Modeling Indoor Chemical Environments," Alfred P. Sloan Foundation, July 2016 to December 2016; $15,333.

Morrison, G.C. (PI), "Workshop: Modeling Indoor Chemical Environments," Alfred P. Sloan Foundation, July 2016 to December 2016; $40,220.

Myers, J.J.

Myers, J.J. (PI), Chen, G. (CoPI), ElGawady, M.A. (CoPI), Sneed, L.H. (CoPI), and Yan, G. (CoPI), "Graduate Assistance in Areas of National Need (GAANN)," US Department of Education, September 2016 to August 2017; $246,140.

Chen, G. (PI), ElGawady, M.A. (CoPI), Ma, H. (CoPI), **Myers, J.J.** (CoPI), Sneed, L.H. (CoPI), Zoughi, R. (CoPI), Long, S.K. (CoPI), Qin, R. (CoPI), and Yin, Z. (CoPI), "Inspecting and Preserving Infrastructure through Robotic Exploration," Department of Transportation, November 2016 to September 2022; $1,402,200.

Oerther, D.B.

Oerther, D.B. (PI), "The Stabilization of Marginalized Communities in Guatemala via Food and Nutrition Security on Child Stunting: Employing Systems Thinking Tools," Conflict and Development Foundation, September 2016 to September 2017; $10,000.

Schonberg, W.P.

ElGawady, M.A. (PI), and **Schonberg, W.P.** (CoPI), "Characterization and Performance of Zerocement Concrete for Longer Service Life of Bridges," Missouri Department of Transportation, October, 2016 to April 2018; $100,000.

Sneed, L.H.

Sneed, L.H. (CoPI), Donnell Hilgedick, K.M. (PI), Ghasr, M. (CoPI), and Grubbs, G.S. (CoPI), "A Multiphysics-based Approach to Active Microwave Thermography," NSF Division of Electrical Communications Systems, July 2016 to June 2019; $362,513.

Chen, G. (PI), ElGawady, M.A. (CoPI), Ma, H. (CoPI), Myers, J.J. (CoPI), **Sneed, L.H.** (CoPI), Zoughi, R. (CoPI), Long, S.K. (CoPI), Qin, R. (CoPI), and Yin, Z. (CoPI), "Inspecting and Preserving Infrastructure through Robotic Exploration," Department of Transportation, November 2016 to September 2022; $1,402,200.

Myers, J.J. (PI), Chen, G. (CoPI), ElGawady, M.A. (CoPI), **Sneed, L.H.** (CoPI), and Yan, G. (CoPI), "Graduate Assistance in Areas of National Need (GAANN)," US Department of Education, September 2016 to August 2017; $246,140.

Stephenson, R.

Stephenson, R. (PI), and Turner, L.S. (CoPI), "ASDSO Technical Seminar: Soil Mechanics for Earth Dam Design and Analysis," August 2016 to August 2017; $15,071.

Stephenson, R. (PI), and Turner, L.S. (CoPI), "ASDSO Technical Seminar: Soil Mechanics for Earth Dam Design and Analysis," August 2016 to August 2017; $5,216.

Stephenson, R. (PI), and Turner, L.S. (CoPI), "ASDSO Technical Seminar: Soil Mechanics for Earth Dam Design and Analysis," August 2016 to August 2017; $7,250.

Wang, J.

Burken, J.G. (PI), Fitch, M. (CoPI), Shi, H. (CoPI), **Wang, J.** (CoPI), and Wronkiewicz, D.J. (CoPI), "Plant Analysis for Revegitation of Lead/Zinc Mine Tailings Using Biosolids and Other Amendments," Doe Run Company, July 2016 to June 2017; $28,000.

Yan, G.

Yan, G. (PI), "Damage and Instability Detection of Civil Largescale Space Structures under Operational and Multi-hazard Environments Based on Change in Macrogeometrical Patterns/Shapes," NSF, September 2014 to May 2015; $10,000.

Yan, G. (PI), "Determine the Design Tornadic Wind Loads on Structures using Straightline Wind Tunnel Testing and CFD Simulation," UM Research Board, November 2016 to October 2017; $45,938.

Myers, J.J. (PI), Chen, G. (CoPI), ElGawady, M.A. (CoPI), Sneed, L.H. (CoPI), and **Yan, G.** (CoPI), "Graduate Assistance in Areas of National Need (GAANN)," US Department of Education, September 2016 to August 2017; $246,140.

Zhang, X.

Zhang, X. (PI), and Burken, J.G. (CoPI), "Research Efforts in Remotesensing Technology Related to Climate Change, Vegetation and Soil Properties," NSF, September 2016 to July 2019; $170,250.

GRADUATE STUDENTS

Master of Science (with thesis)

Anumolu, S., "Behavior of Hollow-core Composite Columns under Torsion Loading," Advisor: **M.A. ElGawady**

Buechlein, M., "Particle Mediated Enhanced Mass Transfer of Diethylhexyl Phthalate: A Pilot Scale System Design," Advisor: **G.C. Morrison**

DiCenso, S., "Bioaccessibility of Lead from Lead-contaminated Soil Upon Phosphate Amendment Using a Physiologically-based Exraction Test," Advisor: **M. Fitch**

Ethi Rajan, P., "Advanced Buffer Materials for Indoor Air CO2 Control in Commercial Buildings," Advisor: **G.C. Morrison**

Goodwin, T., "Phytoforensic Tools: Integrated Systems and the Detection of Chlorinated Solvents," Advisor: **J.G. Burken**

Gora Venancio, V., "Behavior of Ultra-high Performance Concrete Bridge Deck Panels Compared to Conventional Stay-in-place Deck Panels," Advisor: **J.J. Myers**

Korff, A., "Silicone Hollow Fiber Membrane Bioreactors for Mixed Aerobic and Anaerobic Treatment of Gas Phase Toluene and Trichloroethylene," Advisor: **M. Fitch**

Ley Hernandez, A.M., "Influence of Mix Design Parameters on Dynamic Segregation of Self-consolidating Concrete and Consequences on Performance of Precast Beams," Advisor: **D. Feys**

Pavlowsky, J., "Assessing Downstream Stormwater Impacts for Urban Watershed Planning," Advisor: **J.G. Burken**

Saipavan, R., "Evaluation of Ultra-high Performance Concrete in Joints of Bridge Girders," Advisor: **J.J. Myers**

Yacob, N.S., "Shear Behavior of Reinforced Fly Ash-based Geopolymer Concrete," Advisor: **M.A. ElGawady**

Doctor of Philosophy

Al-Jazaeri, Z.R., "Rehabilitation and Strengthening of Reinforced Concrete Members Using a Fiber Reinforced Cementitious Matrix Composite," Advisor: **J.J. Myers**

Callejas, F.R., "Geotechnical State-of-the-Art in Guatemala – Ground Stabilization," Advisor: **R. Luna**

Zena Al-Jazaeri
Ph.D., Civil Engineering
Advisor: Dr. John Myers

Chen, Y., "Long-period Fiber Grating Corrosion Sensors for Life-cycle Monitoring and Assessment of Reinforced Concrete Structures," Advisor: **G. Chen**

Esmaeilkhanian, B., "Development of Low-powder Self-consolidating Concrete, Eco-SCC: Design and Performance," Advisor: **K.H. Khayat**

Finke, J., "A Static and Dynamic Characterization of Tied Arch Bridges," Advisor: **G. Chen**

Hosseinpoor, M., "Numerical Simulation of Fresh SCC Flow in Wall and Beam Elements Using Flow Dynamics Models," Advisor: **K.H. Khayat**

Moustafa, A., "Innovative Techniques for Seismic-resistant Bridge Columns under Ground Motion Excitations," Advisor: **M.A. ElGawady**

Naji, S., "The Characterization of the Physical and Mechanical Material Properties Using Shear Waves," Advisor: **K.H. Khayat**

Tang, Y., "Remote Sensing and Localization of Smart Rocks with Orientation-controlled Magnets for Real-time Monitoring of Bridge Scour and Riprap Effectiveness," Advisor: **G. Chen**

HONORS & AWARDS

Burken, J.G., Fellow – Association of Environmental Engineering and Science Professors (AEESP), Class of 2016.

Burken, J.G., Appointed to U.S. Environmental Protection Agency Chartered Science Advisory Board (appointed by U.S. EPA Administrator), 2016-2022.

Burken, J.G., Distinguished Service Award – International Phytotechnologies Society, 2016.

Burken, J.G., Chapter Honor Member - Chi Epsilon, Civil Engineering National Honors Society, 2016.

Burken, J.G., Scientific Committee and International Organizing Committee; 13th International Phytotechnologies Conference - Plant-based Solutions for Environmental Problems from Lab to Field, Hangzhou City, Zhejiang Province, China, September, 2016.

Chen, G., Member of the Academy of Civil Engineers, 2016.

ElGawady, M.A., Joseph H. Senne, Jr. Academy of Civil Engineers Faculty Achievement Award, Missouri University of Science and Technology, 2016.

ElGawady, M.A., Associate Editor, American Society of Civil Engineering Journal of Bridge Engineering, 2016.

ElGawady, M.A., Chair American Concrete Institute Committee 441 "Reinforced Concrete Columns," 2016.

ElGawady, M.A., Elected member of Board of Directors of The Masonry Society, 2016.

ElGawady, M.A., Member of the Main Masonry Design Code TMS402/602, 2016-2022.

Feys, D., Materials and Structures, Outstanding Paper Award, 2016.

Khayat, K.H., 2016 Elsevier list of 150 most cited people in civil engineering in the world. http://www.shanghairanking.com/The-Most-Cited-Researchers-Developed-for-ShanghaiRanking-Global-Ranking-of-Academic-Subjects-2016-by-Elsevier.html#, 2016.

Libre, N.A., Excellence in Teaching Award, Sigma Alpha Pi, the National Society of Leadership and Success, 2016.

Ma, H., Outstanding Reviewer, Construction and Building Materials, Elsevier, 2016.

Morrison, G.C., Outstanding Teaching Award 2015-2016, Missouri University of Science and Technology, 2016.

Morrison, G.C., Outstanding Teaching Award of Excellence for Global Learning, Missouri University of Science and Technology, 2016.

Morrison, G.C., Otto Monsted Guest Professorship, Danish Technical University, Lyngby, Denmark, 2015-2016.

Myers, J.J., Reelected, Technical Activities Committee (TAC), The Masonry Society, 2016.

Myers, J.J., 2016 SCMT4 Outstanding Paper Award – Received outstanding paper award at the 4th Sustainable Construction Materials and Technologies Conference, August, 2016.

Myers, J.J., Outstanding Teaching Commendation, Missouri University of Science and Technology, 2016.

Myers, J.J., Faculty Excellence Award – University Wide, Missouri University of Science and Technology, 2016.

Oerther, D.B., Lifetime Honorary Fellow of the American Academy of Nursing (F.AAN), 2016.

Oerther, D.B., Superior Achievement Award for Excellence in Environmental Engineering and Science from the American Academy of Environmental Engineers and Scientists, 2016.

Oerther, D.B., Fulbright Specialist Roster for the United States Department of State, 2016.

Schonberg, W.P., NASA Summer Faculty Fellow, NASA/Jet Propulsion Laboratory, 2016.

Sneed, L.H., International Journal of Concrete Structures and Materials, 2015 Best Paper of the Year Award, 2016.

Sneed, L.H., Fellow American Concrete Institute (ACI), 2016.

Sneed, L.H., Global Learning Outstanding Teaching Commendation Award, Missouri University of Science and Technology, Rolla, MO, 2016.

Wang, J., Excellence in Review Award, Frontiers of Environmental Science and Engineering, 2016.

Wu, C., Peebles Awards, Best Paper of 39th Annual Meeting of Adhesion Society, 2016.

Zhang, X., International Award for Innovation in Unsaturated Soil Mechanics, Technical Committee on Unsaturated Soils within the International Society for Soil Mechanics and Geotechnical Engineering, 2016.

Burken and Bayless

Chen

Libre

ElGawady

Myers

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Associate Professor,
Geotechnical Engineering
Texas A&M University